

Claims

1. A multivalent F_v antibody construct having at least four variable domains which are linked with one another via the peptide linkers 1, 2 and 3.
2. The F_v antibody construct according to claim 1, wherein the peptide linkers 1 and 3 have 0 to 10 amino acids.
3. The F_v antibody construct according to claim 2, wherein the peptide linkers 1 and 3 have the amino acid sequence GG.
4. The F_v antibody construct according to any of claims 1 to 3, wherein the F_v antibody construct is bivalent.
5. The F_v antibody construct according to claim 4, wherein the peptide linker 2 has 11 to 20 amino acids.
6. The F_v antibody construct according to claim 4 or 5, wherein the peptide linker 2 has the amino acid sequence (G₄S)₄.
7. The F_v antibody construct according to any of claims 1 to 3, wherein the F_v antibody construct is tetravalent.
8. The F_v antibody construct according to claim 7, wherein the peptide linker 2 has 3 to 10 amino acids.
9. The F_v antibody construct according to claim 7 or 8, wherein the peptide linker 2 comprises the amino acid sequence GGPGS.
10. The F_v antibody construct according to any of claims 1 to 9, wherein the F_v antibody construct is multispecific.

10. The F_v antibody construct according to any of claims 1 to 9, wherein the F_v antibody construct is multispecific.
11. F_v antibody construct according to claim 10, wherein the F_v antibody construct is bispecific.
12. The F_v antibody construct according to any of claims 1 to 9, wherein the F_v antibody construct is monospecific.
13. A method of producing the multivalent F_v antibody construct according to any of claims 1 to 12, wherein DNAs coding for the peptide linkers 1, 2 and 3 are ligated with DNAs coding for the four variable domains of an F_v antibody construct such that the peptide linkers link the variable domains with one another and the resulting DNA molecule is expressed in an expression plasmid.
14. Expression plasmid coding for the multivalent F_v antibody construct according to any of claims 1 to 12.
15. The expression plasmid according to claim 14, namely pDISC3x19-LL.
16. The expression plasmid according to claim 14, namely pDISC3x19-SL.
17. The expression plasmid according to claim 14, namely pPIC-DISC-LL.
18. The expression plasmid according to claim 14, namely pPIC-DISC-SL.
19. The expression plasmid according to claim 14, namely pDISC5-LL.

20. The expression plasmid according to claim 14, namely pDISC6-SL.

21. Use of the multivalent F_v antibody construct according to any of claims 1 to 12 for the diagnosis and/or treatment of diseases.

22. Use according to claim 21, wherein the diseases are viral, bacterial or tumoral diseases.